Best Off-grid Power For A Wilderness Retreat

By now everybody realizes that in cataclysmic SHTF event the number one 'culture shock' moment for unprepared crybabies will be ***no more electricity****!*

At first it will be more expected than anything else.

Many of us have been through a power outage from a bad storm or equipment failure at one time or another in our lives. But what if the electricity didn't come back on again as it usually does, in the nick of time, just at about when our flashlight batteries start to die?

Or what happens when it might be months before power is restored by the regular power companies, and maybe not for years?

Puerto Rico STILL is without power in most areas after this summer's hurricane! We then come to the critical understanding that it might be time to have an off grid electrical power set up to fall back on if we ever want to recover from a caveman lifestyle in a SHTF event.

The problem is that there's so much information out there now that a lot of us are still confused about exactly what we really need to be 'off grid' and how to go about doing this. To help clear things up, here's a quick general intro to everything you really wanted to know about an off-grid system but were afraid to ask!

What Exactly Does Off-Grid Mean?

I know everybody has an idea of what going 'off grid' means. But someone answered that for me once by saying, 'Oh, that's like being a mountain man and living off the land with only

your horse, a knife, and your gun,’ she answered.

Well, not exactly. Living off the land with only a couple tools can be called being ‘off grid’ I suppose, but to me that’s more like being in a very basic emergency survival mode, living each day just to maintain your miserable existence with only your bushcraft and survival skills. To me this is more like a temporary survival exercise until you can get back to civilization!

Having a little more than just a basic stomach filling meal and campfire to keep you from freezing at the end of the day will get worse than boring after a while.

Because I guarantee you, bare bones 18 century homesteading won’t be anything like you are used to, or ever fantasized it to be, when you were enjoying your favorite Grizzly Bear chasing the HD cable movie, on your nice flat screen TV with a bowl of hot buttered microwaved popcorn in your comfy thermostatically controlled modern habitat.

Big Power Companies Will Unfriend You

Going off-grid in prepping means that you are not going to be connected to one of these major public power company grids any longer so you also won’t be paying them outrageous monthly electric bills which also allows them to install smart meters on your house, and spy on your personal habits.

It doesn’t mean you will be without electricity for the electrical devices you need and want because it’s hard to do much without electricity except waste your entire day trying to feed yourself and keep warm.

But instead you simply are going to become your ‘own power company’ and you will be your only customer. Well that sounds interesting?

This smart device will help you slash an excess of 70% off your power bill overnight…

Obviously your personal power plant is going to have to be scaled down a bit. It won't use a giant turbine steam engine and certainly won't be nuclear. You don't need miles long railroad cars loaded with tons of coal to feed the boilers for your power plant.

All you need are batteries—proportionally larger than your radio, flashlights, and cell phone equipment uses, but still similar in fundamental operational principle— and a way to keep them charged long term.

A word of caution at this point because there's a cornucopia of appealing cool ideas on YouTube for providing off grid electricity to your place. Everything from zero point energy to perpetual flywheel motion, but most of it is so complicated and produces such limited power for practical use if it even barely proves the concept that these are really just experimental ideas and won't really work for your survival purposes at this point in time.

The standard tried and true off grid power systems almost invariably use a combination of battery banks and solar/wind power. Even a scaled down battery and charging system for just your own personal house, won't be 'dirt' cheap as most of advertisers seem to be implying.

A complete standard home electrical system converted to complete off grid power is averaging less in total cost than it was a few years ago but it still can be out of reach for most of us 'Po Folks' who can't just casually lay out several thousands of 'dead presidents' (a.k.a. dollars) for a professional whole house commercial conversion.

But if you just intend to set up electricity for your smaller

bug out location shelter which might be a tiny cabin, or travel trailer, or even a heavy duty tent like a yurt, with off grid electrical power, that’s a different and much more affordable, story.

All you need to do first is look up at the sky and find out how many days out of the week you are likely to average peak full sunlight hours. Because, again, the most common and least expensive way for small off grid applications is to use ‘ol sun to charge your batteries with solar panels.

This is so you can then start to plan how many batteries you might need, or if you might need additional battery chargers like a windmill or a small gas generator which is what many people use for a temporary outage anyway all by itself if they think ahead to store enough gas for it properly.

But if we’re talking long term survival and power needs at the BOL, we want something that lasts a long time without a lot of headaches. To put it simply your location has a lot to do with just how you balance and put together your system in terms of batteries and charging systems and solar panels.

And to keep the system cost effective, all these components become a trade-off depending upon your location and of course your power requirements.

You Can Do It Yourself!

First of all, you’ll save yourself a lot of labor money if you want to DIY and there’s all kinds of internet tutorials and books and quick guides out there.

You’ll also learn valuable useful knowledge about electricity and it’s really not hard even if you’ve never done it before. And then afterward, you can pay an electrician familiar with solar off grid set ups a one time relatively modest inspection fee to check it out for you.

So, here’s the bargain basement basics just to get you started.

“Watts” Up With That?

It all starts with WATTS! Think of it as the resulting amount of vibrating microscopic atomic electrons which can be manipulated and transformed into the electrical current ‘juice’ that powers all the plug-in stuff.

Your electrical wiring in your house has to carry electrical power to feed these watts to feed all of your electrical stuff and when you plug in the particular device just takes/draws out the amount of watts it needs to operate.

This is the electric ‘currency’ on a power system. Everything you have that uses electrical measures that usage in Watts. You pay you’re your utility company for what they refer to as Kilowatt Hours used.

Every tag on the back of every appliance tells you how many Watts your gadget needs to do what it’s supposed to do. Microwaves from 600 to 1100 watts on average, lightbulbs 30 to 200 watts on average, refrigerators and appliances between 2 and 6 hundred, and so on.

Determining how you get the amount of Watt power you want for your needs and deliver them to your home through a combination of Amps and Volts are part of the common formula, **Watts=Volts x Amps**.

Because **volts**, which is the electrical energy potential measurement in representing the electrical ‘forces’ factor which provide ‘pressure’ to move the electrical energy around the circuits through conductors which are the common types of house wiring you see everywhere.

Voltage potential can be stored, like in batteries, or generated constantly by electrical generators which are

basically magnets that generate vibrating atoms to cause their protons and electrons to ‘energize’ through movement and then ‘flow’ a distance to another point through conducting wires for power use on that end.

Then we have Amps in the formula.

Amperage has to do with the ‘rate’ of the electromagnetic ‘flow’ in an electrical conducting wire. This one’s pretty easy to do an analogy for, just like a skinny garden hose trying get enough water (electrons’) to take care of a large burning building is not going to work, neither is a thin electrical wire enough of a conduit to provide enough watts to power a huge office building.

You have to balance the capacity of the wires to handle electrical ‘loads’ for optimum utility.

The **Watts= Volts X Amps** math can be used to determine all combinations of batteries and wiring sizing you will need to give you your necessary watts.

Remember that batteries eventually run out of stored potential energy and then must be re-charged. So, the charging system and wiring components then make it a bit more complicated, but not insurmountable for the average handy person.

Let There Be Light!

Okay, you decided that for now that you could survive comfortably in the middle of the wilderness in your survival shelter with around 1500 continuously available watts.

This means you can have on a couple 100 watt light bulbs, or a few 60 watt bulbs instead, a computer, TV, radio, and electric refrigerator, and even a microwave all on at about the same time before possibly overloading the system, and tripping the circuit breaker.

This would be only one 20 amp breaker on one main 12 gauge wire in your hard wired house system off the inverter, to split up between your mini-grid appliances and outlets, (unless you just temporarily ran a couple heavy extension cords directly off your inverter.)

So with this set up you'd be living about like they did in rural areas about 75 year ago with their electrical systems where 'out houses' were common and outside hand pumps into buckets brought the water in, until electric well pump motors were gaining popularity so indoor plumbing eventually became the norm.

But there were few, if any electrical washing machines and dryers or electric kitchen counter tops and heating was still virtually all done with fossil fuels.

So you want to figure out how many batteries you need for continuous 1500 hundred watts application for at least a couple days, but preferably a week of basic power before draining, and needing complete recharging if the sun or your solar panels don't work to keep your batteries charged up. You want to keep them above 60 percent capacity during use to preserve their lifespans. Too many complete discharges/cycles are not good.

If you do live in an area where it gets so cloudy and dark that you often can go for many days without seeing the sun, then you will want to have a **small wind generator** to keep up the charge along with your solar panels, or a back-up portable gas generator.

There's plenty of DIY projects on building wind turbines too, or you can get ready made commercial models. Here are some of them, to ease your research.

So having only one 12 volt deep cycle/marine battery which is not much bigger than a standard car battery but that lasts a bit longer between charging that on average says generates 675

amps and also says it gives you 100 amp hours at 20 hours, with different numbers here depending on the type/brand of battery, which is another confusing measurement of how long your battery lasts without charging before it goes dead, and is a little deceiving for practical purposes.

What you have to do is divide the 100 Amp/hour number by the other '@20 hour' number to get 5 amps (to use in the equation for watts) of continuous amperage for the entire 20 hours before it drains and is discharged.

So now let's solve for watts when watts = volts x amps. so 12 volts x 5 amps equals a whopping 60 watts. Yup, that doesn't seem like much and sure is long way from 1500 continuous watts at one time? You can power maybe one 60 watt lightbulb for up to 20 hours. You can also power that lightbulb directly from a 60 watt solar panel on a sunny day.

Or a windmill that puts out the same wattage when it's running at speed. All these work together on a system to cover all weather contingencies. But the 'load' is mostly on the batteries because they don't care what the weather is as long as they stay charged.

However, for shorter time periods the battery can actually deliver more of the 'cranking' amps in its capacity and therefore more watts for a shorter time.

That's how your single car battery starts your car's powerful electric starter motor which needs a lot of watts and amps to crank over the gas car engine. 450 cranking amps X 12 volts is like around 7400 watts!

However, If you crank for more than a few minutes straight, you'll usually wear down and kill the battery. And of course this energy/power trade-off is why if you accidentally leave your headlights on overnight you can't start your car the next day because that usually pushes the 20 hour limit with only 5 amps per hour draw.

A single battery might work for a very short time for high energy needs up to a point, but not that well for extended off grid use.

The device that handles all these variables is called a power inverter. It changes 12 volt battery current to the AC (alternating current) that Tesla invented which is what is typically used in virtually all of our house and commercial electricity systems today.

You need this inverter off your 12 volt battery system because typical home wiring also uses 120/240 volts of power energy from the big power line service entrance to your house. So your TV, refrigerator, etc. is not set up for DC (direct current from the battery) and has to be 'inverted' to AC. The inverter changes the 12 volt battery mode to the 120 AC mode so you can just plug in your AC appliances right into the inverter with extension cords if you want. This makes the wiring for your off grid is not that complicated at all for basic purposes. It's just like plugging into a wall outlet.

Video first seen on Power Inverters.

You find inverters at Home Depot, Amazon, and even Walmart. You can get a 1000 watt basic model for about 35 dollars or a better 2000 watt sine wave model with battery voltage gauge and charge controller for around $250.

If you just want something already to plug and play, there are quite a few portable off grid units that can be purchased ready to go, complete with folding solar panels and portable carrying case. Some of these, as expected, are a bit pricey.

But some are good deals if you have no inclination to put together your own system from components!

Separately an average new deep cycle 12v battery from Home Depot is around a hundred bucks. Solar panels are sold online

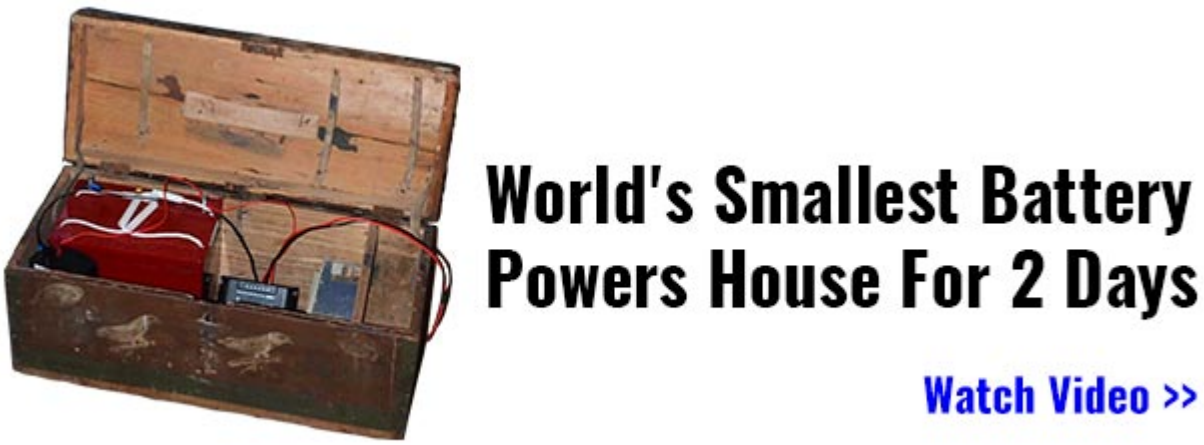
for about a dollar a watt.

So you can still have your 1500 watt off grid power set up as long as you're not burning up all 1500 watts continuously when there's no wind or sun, which you never really would have to do when you think about it. You could get away with a basic setup of just maybe two or three batteries, a hundred watt solar panel to start with, and/or a small wind generator for charging and a cheap inverter, all for around a thousand dollars right off the commercial shelf.

If you are handy you can follow the instructions and build your own, and even your own wind turbine and solar panels for much less! This might sound a bit complicated at first, but after you get into it more, it'll be no more difficult than changing the battery and cables on your car.

Start Small and Grow as You Become More Enlightened

For preppers who just want their bug out location or even their main residence to have basic off grid power, it's a lot easier and much cheaper than you think if you start by getting one of these step by step detailed guides like this one here:



And then you expand as your resources permit if you want. It's not hard to find decent used junkyard car or golf cart

batteries and refurbish them for just a few bucks each and simply keep adding them to your battery bank for longer duration power potential.

So the answer to the question of what is the best off grid power system for a wilderness application, the main qualification will be the least expensive and the simplest, which will be something along the lines of what was just described here.

Your bug out location, even in the wilderness, doesn't have to be a sensory deprived punishment sentence with miserable primitive living conditions. You can still have a decent comfortable modern electrical power setup for a relative bargain.

And why not? It'll be bad enough otherwise trying to survive a grim long term scenario.

Modern electrical 'work' assistance from electricity will help you concentrate more on other necessary things like security and supplies. Maybe even watch Zombie movies from your VCD library once in awhile…to relax!

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